REMARKS

Claims 1-38 are pending in the application.

Claims 1-38 have been rejected.

Formal Matters

The undersigned wishes to acknowledge the telephone interview conducted on August 2, 2004 and to thank the Examiner for his clarification of certain statements. While no agreement as to the patentability of the pending claims was made during the interview, the undersigned believes this paper is in harmony with the positions expressed during the interview.

Rejection of Claims under 35 U.S.C. § 103(a)

Claims 1-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shinohara, U.S. Patent No. 6,067,298 (hereinafter "Shinohara"), in view of Khacherian et al., U.S. Patent No. 5,768,257 (hereinafter "Khacherian"). Applicants respectfully traverse this rejection.

The cited art fails to teach or suggest a system in which, "approximately when the output traffic manager drops outbound packets or is about to drop said outbound packets, the output traffic manager communicates to the ingress receiver to drop inbound packets destined for the selected queue," as recited in claim 1.

Shinohara teaches a system in which: "In each output line corresponding queue within the output buffer module section 30, when the queue length Qoxbl exceeds the threshold value Qth_bpoxbl, the output buffer module section 30 originates the back pressure signal (BP_OXBL) 70 to all input buffer module sections. The input buffer module section 20 ceases to transmit cells to the output line to which the BP_OXBL signal 70 has been originated." Shinohara, col. 8, lines 12-17. Thus, Shinohara teaches a

system in which one or more input buffer module sections cease to transmit cells to an output line if a back pressure signal has been originated.

As noted by the Examiner, "Shinohara fails to teach the output traffic manager communicates to the ingress receiver to drop inbound packets destined for that queue." Office Action, pp. 2-3. Khacherian, both alone and in combination with Shinohara, also fails to teach or suggest this feature.

Khacherian teaches a system in which an "input port buffer control unit cannot release a discrete information unit from its input buffer to the destination output port (via the switch fabric and output rate buffer unit) without the explicit consent of the destination port's output data flow control unit." Khacherian, col. 3, line 64-col. 4, line 2. In Khacherian, the input buffer requests permission to release a discrete information unit to the switching fabric and then waits for the output port to grant the request. When the request is granted, the "source input port's input buffer control unit then releases the discrete information unit to the switch fabric for final delivery to the destination port's output rate buffer unit." Khacherian, col. 4. lines 36-51. Thus, while the output port controls whether the input port releases a discrete information unit to the switching fabric by controlling when the requests are granted, the output port clearly fails to "communicate to the ingress receiver to drop inbound packets," as recited in claim 1 (emphasis added). Accordingly, Khacherian, both alone and in combination with Shinohara, clearly fails to teach or suggest claim 1.

The rejection of claim 1 based on Shinohara in view of Khacherian ignores two critical facts. First, Shinohara's communication to the input buffer module sections is used to cause the ingress buffer module sections to stop sending packets to the output line, not to cause the input buffer module sections to begin dropping packets. Shinohara neither teaches nor suggests a communication to drop packets. Second, while Khacherian teaches a system in which packet drop occurs at the input port, the input port taught in Khacherian does not drop packets in response to a communication from the output port (in fact, the output port only communicates with the input port in order to grant requests, generated by the input port, to release packets from the input port to the output port). Nowhere in either reference is a communication to drop packets taught or suggested. Thus, the combination simply does not teach "the output traffic manager communicates

to the ingress receiver to drop inbound packets destined for the selected queue", as recited in claim 1.

Furthermore, in the system taught in Khacherian, the output traffic manager is not meant to drop packets or be about to drop packets, as evidenced by the mechanism that forces packet drop to occur at the input port (as opposed to the output port): "In this approach, dropped discrete information units (cells) are dropped at the input port, and so will not be transmitted across the switch fabric." Khacherian, col. 2, lines 65-67. Thus, the use of the techniques taught by Khacherian effectively prevents the trigger condition recited in the claims (the output traffic manager dropping outbound packets or being about to drop outbound packets) from occurring. Thus, any combination that employs the techniques of Khacherian will necessarily not be able to operate in the same manner as the claimed invention.

Furthermore, as noted in the previous response, neither Shinohara nor Khacherian would be expected to suggest the claimed invention, given that neither reference suggests a need to drop packets in the input receiver in response to communication from an output traffic manager. Instead, both references focus on flow control mechanisms that determine when one stage of a switch can release packets to another stage. For example, as noted above, in Khacherian an "input port buffer control unit cannot release a discrete information unit from its input buffer to the destination output port (via the switch fabric and output rate buffer unit) without the explicit consent of the destination port's output data flow control unit." Khacherian, col. 3, line 64-col. 4, line 2. Likewise, in Shinohara, in "each output line corresponding queue within the output buffer module section 30, when the queue length Qoxbl exceeds the threshold value Qth_bpoxbl, the output buffer module section 30 originates the back pressure signal (BP_OXBL) 70 to all input buffer module sections. The input buffer module section 20 ceases to transmit cells to the output line to which the BP_OXBL signal 70 has been originated." Shinohara, col. 8, lines 12-20. Thus, both references teach a flow control technique to control when packets are released by an input stage, not a technique to control when packets are dropped. Accordingly, the references would not be expected to suggest an "output traffic manager [that] communicates to the ingress receiver to drop inbound packets destined for the selected queue", as recited in claim 1.

Additionally, in the response to arguments section of the Final Office Action, the Examiner states that "the claim languages 'approximately' and about' in claim 1, could not interpret the metes and bounds of the claim so as to understand how to avoid infringement. Note the explanation given by the Board of Patent Appeals and Interferences in Ex Parte Wu." Final Office Action, p. 5. The use of "broadening modifiers" such as 'approximately' and 'about' is recognized as a "standard [tool] in claim drafting." MPEP 2173.05(b). The standard for determining whether relative claim language is imprecise involves determining (a) whether a standard for measuring the degree of the term is presented in the specification and (b) if not, whether one of ordinary skill in the art would be nevertheless reasonably apprised of the scope. MPEP §2173.05(b). Applicants assert that one of ordinary skill in the art would reasonably be apprised of the scope of the terms 'approximately' and 'about', as used in the context of claim 1. Furthermore, Applicants note that the widespread use of relative claim terminology, such as 'approximately' and 'about', provides evidence that such terms should not automatically be treated as being indefinite. For example, a search of the US PTO database of issued patents on July 29, 2004 yielded 17,405 patents that included the term "approximately" in a claim. Additionally, the MPEP discusses several examples of situations in which the term "about" was held to be clear, but flexible, in §2173.05(b)A.

In the phone interview of August 2, 2004, the Examiner stated that the thresholds (e.g., Qth_bpoxbl) taught in Shinohara teach the condition ("approximately when the output traffic manager drops or is about to drop output packets") recited in claim 1. Applicants note that the cited portions of Shinohara neither teach nor suggest that the thresholds correspond to situations that occur "when the output traffic manager drops outbound packets or is about to drop said outbound packets." Accordingly, for at least the foregoing reasons, claim 1 is patentable over the cited art, as are dependent claims 2-14. Claims 15-38 are patentable for similar reasons.

As noted in the previous response, with respect to claim 7, 22, 30, and 38, the cited art fails to teach or suggest an ingress receiver that discontinues inbound packet drop after a predetermined time, as recited in claim 7. The Examiner relies on Shinohara to reject this claim. The cited portion of Shinohara recites:

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"The ATM switching system of claim 2, wherein said rate computing means periodically computes an acceptable rate for each service class based on a status time change of said virtual queue by service class or said output line corresponding queue of said output buffer module section, and wherein said input buffer module section further includes an internal rate control means that controls a cell transmission for each output line based on said acceptable rate." Col. 14, lines 38-46.

This section simply describes how the input buffer module of Shinohara controls cell transmissions based on an acceptable rate. Furthermore, the quoted section focuses on controlling cell transmissions, not on controlling whether packets are dropped. No teaching or suggestion concerning whether packet drop should be discontinued is provided, nor would such a teaching or suggestion be expected, given that the quoted section is not concerned with packet drop. The combination of Khacherian and Shinohara also fails to provide such a suggestion. Accordingly, claim 7 is clearly patentable over the cited art. Claims 22, 30, and 38 are additionally patentable over the cited art for similar reasons.

CONCLUSION

In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5087.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, COMMISSIONER FOR PATENTS, P. O. Box 1450, Alexandria, VA 22313-1450, on **August 30, 2004**.

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